the public do not trust those involved in xenotransplantation, any system of regulation might seem insufficient and it may seem more promising to wait for alternative methods.

Acknowledgement

Crants from the research program BIO-CT97-2242 of the European Commission and from the Swedish Medical Research Council (K99-73X-13153-01A) have supported work on this paper.

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References and notes

- 1 Pig organs are similar enough to human organs; pigs are of approximately the same size as humans and are easy to breed. At the same time, from an evolutionary point of view, pigs are not as close relatives as primates, and the risk of transmission of disease is believed to be considerably lower than from primates.
- 2 Platt J. New directions for organ transplantation. *Nature* 1998; 392;11-17 (supp).
- 392;11-17 (supp).
 3 Groth CG, Korsgren O, Tibell A, Reinholt F, Wennberg L, Satake M, et al. Clinical islet xenotransplantation transplantation of porcine islets into diabetic patients. In: Cooper DKC, ed. Xenotransplantation: the transplant of organs and tissues between species. Berlin: Springer, 1997: 812-20.
 4 Butler U. Last chance to stop and think on risks of xenotransplant. Nature 1988;391:320-4.
 5 http://www.islet.org./41
 6 Patience C, Takeuchi Y, Weiss RA. Infection of human cells by an endogenous retrovings of pins. Nature Medicine 1907:3:282-29.

- an endogenous retrovirus of pigs. Nature Medicine 1997;3:282-
- Denner J. Immunosuppression by retroviruses: implications for xenotransplantation. Annals of New York Academy of Science 1988;862:75-86.
 See reference 7: 75.
- Heneine W, Tibell A, Switzer WM, Sandstrom P, Rosales GV, Heneine W, Tibell A, Switzer WM, Sandstrom P, Rosales GV, Mathews A, et al. No evidence of infection with porcine endogenous retrovirus in recipients of porcine islet-cell xenografts. Lancet 1998:352:695-9. Patience C, Patton GS, Takeuchi Y, Weiss RA, McClure MO, Rydberg L, et al. No evidence of pig DNA or retroviral infection in patients with short-term extracorporeal connection to pig kidneys. Lancet 1998;352: 699-701.

- 10 Stove I. No clear answers on safety of pigs as tissue donor
- source. Commentary. *Lancet* 1998:352:666-7.

 11 Paradis K, Lanford G, Long Z, Heneine W, Sandstrom P, Switzer WM, *et al.* The XEN 111 Study Group, Otto E. Search for cross-species transmission of porcine endogenous retrovirus in patient treated with living pig tissue. *Science* 1999;285:1236-41.
- patient treated with living pig tissue. Science 1999;285:1236-41.

 Weiss RA. Xenografts and retroviruses. Science 1999;285:1221
 2; US FDA. Transcript from biological response modifiers committee, xenotransplantation subcommittee. June 3-4 1999.

 Washington: Millers Reporting Company Inc, 1999.

 Bach FH, Fishman JA, Daniels N, Proimos J, Anderson B, Carpenter CB, et al. Uncertainty in xenotransplantation: individual benefit versus collective risk. Nature Medicine 1998;
- 4:141.
- 14 See reference 13:142.
- 15 See reference 13: Bach et al are thus recommending two moratoriums: one before any clinical trials of xenotransplanta-tion start and one after the first clinical trials—before moving to clinical use. However, it could be extremely difficult to put the proposed second evaluative moratorium into effect—if xenotransplantation is successful and no sign of viral infections
- appear.

 16 Novak K. US FDA to issue new rules on xenotransplantation. Nature Medicine 1998;4:876.
- 17 Nuffield Council on Bioethics. Animal-to-human transplants: the ethics of xenotransplantation. London: Nuffield Council on Bioethics, 1996: 79
- 18 Hughes J. Xenografting: ethical issues. Journal of Medical Ethics 1998;**24**:18-24.
- 19 Caplan AL. Ethical issues raised by research involving xenografts. Journal of the American Medical Association 1985: 254:3339-43.
- World Medical Assembly Declaration of Helsinki. Bulletin of Medical Ethics 1997;May:8–9.
- This is proposed by the recent Swedish Parliamentary Commission on Xenotransplantation. SOU 1999:120. Stockholm: Socialdepartementet, (Ministry of Health) 1999. Zion D. Ethical considerations of clinical trials to prevent vertical transmission of HIV in developing countries. Nature Medi-
- cine 1998;4:1-12.
- 23 For the view that consent is a sufficient condition for recruitment (if there is no risk to others involved) see reference 18: Hughes J: 20.
- 24 This is also a recommendation made by the Nuffield Council
- on Bioethics. See reference 17: 86.

 The case with the poor patients is similar in many ways to other issues of doing clinical research in developing countries.
- This does not hold for bridges. Bridging to obtain a human organ later is meaningless in the clinical setting; in research it may be more acceptable but it imposes other risks on the par-
- 27 See reference 12: US FDA.
- 28 European Public Concerted Action Group on Biotechnology and the European Public. Europe ambivalent on biotechnology. *Nature* 1997;387:845-7.
- Walters L, Palmer JG. The ethics of human gene therapy. New York and Oxford: Oxford University Press, 1997: 39.

News and notes

Wisdom in Healthcare

The XVth international congress of the European Society for Philosophy of Medicine and Healthcare will be held from August 16-18 2001, in Lisbon, Portugal. The theme is Wisdom in Healthcare.

Some of the topics covered will be: Kairos in clinical decision making; philosophy and clinical epidemiology; care ethics; the wise healthcare professional, and the wise patient.

Abstracts should be received by 1st January 2001. To register and for more information please contact: Prof dr Henk ten Have, ESPMH Secretariat, Dept of Ethics, Philosophy and History of Medicine, Faculty of Medical Sciences, University of Nijmegen, PO Box 9101, 6500 HB Nijmegen, the Netherlands. Fax: ++ 31-24-3540254; emai: h.tenhave@efg.kun.nl